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14 January 1983

Worldwide Report

TELECOMMUNICATIONS POLICY, RESEARCH AND DEVELOPMENT

No. 256

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BRIEFS

MATRA'S VIDEO SYSTEM IN KUWAIT--Matra has just received a contract of the order of 35 million francs to supply a videotex system to Kuwait. This system, which will be built around a Videopac 1000 (based on Mini-6) supplied by Steria, will have about 1000 Matra videotex terminals. It is expandable to 10,000 terminals. The terminals, including Minitels for professional use, and Teletel decoders for household use, required the development of special procedures designe for Arab and English, such as right-to-left screen display and Arab/English keyboard. [Text] [Paris ELECTRONIQUE ACTUALITES in French 26 Nov 82 p 14] 11,023

CSO: 5500/2559

BRIEFS

IINA SATELLITE COMMUNICATIONS--The INTERNATIONAL ISLAMIC NEWS AGENCY, IINA, has decided to establish satellite communication links between Jidda and Jakarta and Kuala Lumpur to further expand dissemination of news among members of the organization. The IINA's decision reflects the Islamic countries' acknowledgement of the important role and position of Indonesia and Malaysia in the organization. Indonesia was represented by ANTARA at the IINA conference which concluded on 16 November. The next general session will be held in Pakistan in 1985. [Jakarta Domestic Service in Indonesian 2300 GMT 19 Nov 82 BK]

USE OF FRENCH SATELLITE--Yogyakarta, December 1 (ANTARA)--Indonesia will take part in the utilization of the French made 'Spot' satellite which is scheduled to be launched into its orbit in 1984. In relation with the plan to cooperate with France in the utilization of the 'Spot' satellite, a workshop on the application of remote-sensing system is being held here on November 30 and December 1. [Jakarta ANTARA in English 0908 GMT 1 Dec 82 BK]

MINI SATELLITE EARTH STATION--The construction of a minisatellite earth station project by the Singakawang Telecommunications Company at a cost of 123 million rupiah has been completed and will be inaugurated together with other projects. [BK200518 Jakarta Domestic Service in Indonesian 1200 GMT 17 Dec 82 BK]

CSO: 5500/4316

RADIO RELAY STATION IN PREY VENG INAUGURATED

BK290845 Phnom Penh Domestic Service in Cambodian 0430 GMT 29 Nov 82

[Text] A ceremony was held in Prey Veng provincial town on 26 November to inaugurate a radio relay station in the province. The ceremony was presided over by a delegation from the radio Voice of the Kampuchean People led by its director general, Comrade Un Dara.

Comrade Long Vibol, chief of the provincial propaganda and education service, read a report on the development of the relay station's service in propagating the party's lines and educating the people to increase production and expose the evil face of the traitorous reactionaries.

Then, Comrade Thong Boret, secretary of the provincial party committee, made a speech referring to the great achievements scored by the province in the past more than 3 years under the victorious banner of the party, front and government and the current development in the province, particularly in the production field.

In his speech, Comrade Un Dara referred to the development and great achievements made by the radio Voice of the Kampuchean People in the past more than 3 years in moral and ideological fields, as well as its popularity among our people and public opinion of the progressive countries in the world. He said our radio disseminates the truth of the party and government. The comrade also stressed on the effective cooperation between our radio Voice of the Kampuchean People with that of the friendly socialist countries. The comrade also exposed the perfidious maneuvers of the Beijing expansionists in collusion with the U.S. imperialists and other reactionary forces in forming the so-called Tripartite Coalition Government in an attempt to sabotage the rebirth of Kampuchea and to revive the genocide of the Kampuchean people.

Following the speech Comrade Un Dara cut the inauguration ribbon.

CSO: 5500/4318

KPNLF RADIO STATION BEGINS BROADCASTING

BK260813 Hong Kong AFP in English 0739 GMT 26 Oct 82

[Text] Singapore, Oct. 26 (AFP)--The anti-communist Khmer People's National Liberation Front (KPNLF) has started a radio station broadcasting Khmer language programmes, it was learned here today.

The small station, situated in a KPNLF stronghold just inside Cambodia, is now broadcasting two 30-minute programmes beginning at 5 am and 6 pm, the sources said.

The broadcasts are composed of news, commentary and music.

But because the transmitter is low-powered the radio can only be heard in the western Cambodian provinces of Battambang and Siem Reap.

The KPNLF, which formed a coalition government with Prince Sihanouk and the Khmer Rouge in June this year, has been keen to have its own broadcasting facilities to match the relatively powerful south China-based transmitter made available to the Khmer Rouge by the Chinese authorities.

There was speculation some time ago that the Singapore Government might provide such facilities, but this was denied by KPNLF sources.

If the temporary arrangements now made by the KPNLF prove successful, it will try to obtain a more powerful transmitter to reach listeners throughout Cambodia, the sources said.

CSO: 5500/4318

TELECOMMUNICATIONS DEPARTMENT PLANS NEW SERVICES

Kuala Lumpur BUSINESS TIMES in English 10 Nov 82 p 1

[Text]

BUSINESS organisations will be the major users of new technologically sophisticated telecommunications services to be introduced by the end of 1984.

Energy, Telecommunications and Posts Minister Datuk Leo Moggie said yesterday that his ministry and the Telecommunications Department were now carrying out a market survey to gauge the potential for three "value added" services - Datel, telematics and access to foreign data bases.

Telecoms is also looking into the equipment needed for these services.

Datuk Moggie was speaking at a briefing for about 25 Members of Parliament at the Telecoms Department headquarters in Kuala Lumpur.

Datel allows information to be sent or retrieved instantly among organisations which have special links with their branches anywhere in the country.

Telematics offers the subscriber four services — videotext, teletext, broadcast videotext and facsimile. Through these facilities, subscribers may receive information such as the latest news on their television screens merely by dialling a number on their telephones.

They may also send photographs and graphics to other terminals.

In Britain, videotext, known commercially as Prestel, was aimed initially at households but is now used increasingly by business not for obtaining general information but for carrying out transactions such as making hotel and airline reservations and receiving information from other computers in other systems.

The introduction of such services here will bring Malaysia up to date with new telecommunications technology, Datuk Moggie said.

Singapore for instance will be introducing a similar service which called "Teleview" by 1986. Singapore Telecoms, in a joint venture with a British firm, is now developing an adaptor to enable a television set to take the service.

Datuk Moggie emphasised that the government will still give priority to improving and expanding the basic telephone and telex services.

The Telecoms Department expects to have 2.4 million subscribers by the end of the decade. "This means that about 13 out of every 100 persons in Malaysia will have a telephone, assuming a growth rate of 2.6 per cent a year during the decade.

Currently six persons out of every 100 have a telephone compared with 54 in the US and about 50 in both Japan and the Britain, according to the department's director general Datuk Mohd Nadzim bin Abdul Hamid.

Datuk Nadzim said there were currently 180,000 applications pending for telephones in Malaysia. Telecoms has revised upwards its estimate of the total demand for telephones for the Fourth Malaysia Plan period and accordingly, hopes to achieve a target of 2.1 million telephones instead of 1.2 million previously.

CSO: 5500/8501

LOCAL COMPUTER DESIGNER SEES U.S. INTEREST IN PRODUCT

Auckland THE NEW ZEALAND HERALD in English 8 Nov 82 p 8

[Text]

NZPA **Washington**

Mr Neil Scott, designer of New Zealand's Poly computer, went to the United States to pick up ideas and ended talking about exporting New Zealand equipment to America.

About halfway through his two months on a scholarship he found so much interest in the Poly, a computer designed for schools, that he had one sent from New Zealand and spent two days demonstrating it in Pittsburgh.

"They spent the whole time with their tongues hanging out," he said.

Mr Scott, who is head of physics, electronics, telecommunications and electrical engineering at Wellington Polytechnic, said he found computers in American schools running on mediocre software.

"The Poly is far superior and oriented towards education," he said. "We built a machine that was intended to allow teachers from anywhere in the school to use the thing without having to know about computers.

"You start the thing by turning on the power and type in your name. From there it leads you on through menus, keeps you within a sheltered environment. If you want to get out into programming-land then you go out and you can do anything you like.

Confirmed

"I use them right down with handicapped children and up to people at polytechs and universities doing pretty swept up sort of stuff.

"What I've seen as I've travelled round has confirmed my thought that within the price scale I have not seen anything that comes near it."

The area that was better in the United States was engineering skills that could bring costs down, Mr Scott said, and there were ideas there he would be taking back.

Another New Zealand concept that had created great interest was teleconferencing, through computers, he said.

Voice Links

Video-conferencing, just getting under way in the United States, worked well but was too expensive for small countries, he said.

The New Zealand idea was to have a voice link and computers which would all receive and display the same graphics as the conference continued.

This could be one of the options for Pacific Islands when the Peacesat educational satellite dies, Mr Scott said.

"This is the sort of thing we've been experimenting with — it means that for a few thousand dollars we've got something that will at least give you graphics and text without the cost of a very complicated television signal."

Overheads

In the handicapped area, Mr Scott said he found American research and development on a par with New Zealand's, but with the Americans using grants of many thousands of dollars.

In America the computer industry had such high overheads that it was too expensive for companies to take a prototype and turn it into practical equipment unless they foresaw high sales.

"So what I've been talking to people about is that we should look at the possibility of helping, say in the handicapped area, where the potential market is small," said Mr Scott.

"That market in America, added to the home market, would make it viable for a New Zealand company to produce the equipment. There are distinct possibilities there."

SATELLITE MAPMAKING SOFTWARE TO BE MARKETED OVERSEAS

Christchurch THE PRESS in English 9 Nov 82 p 25

[Text]

New Zealand-developed computer software for making earth resources maps from satellite and aircraft multispectral camera information is about to be marketed overseas.

It is the Earth Satellite Plotting (E.S.P.) system, the result of five years image science research at the remote-sensing section of the D.S.I.R.'s Physics and Engineering Laboratory in Lower Hutt.

On October 29, a licensing agreement was signed by the Minister of Science and Technology, Dr Ian Shearer, and the managing director of Progeni, Mr Percy Harpham, whose Lower Hutt-based software company will market the system through its Australian and American offices and through international consultants in the Pacific Basin.

The system was designed by two D.S.I.R. scientists, Dr Michael McDonnell and Mr David Peirman, and formed the basis of an international Swiss award won by Dr McDonnell last June.

Dr McDonnell said the E.S.P. software system is a general-purpose tool for analysing satellite and aircraft images and producing maps. It has been used experimentally in New Zealand with information from Landsat and coastal-zone satellites and aircraft surveys.

The images arrive at the laboratory in a long series of numbers on magnetic tapes which are processed by the E.S.P. software in a variety of ways depending on what information is required.

"We can twist images to match any existing map projection, enhance colour tones for numerous resource classifications, and even sharpen edges to detect earthquake fault lines," Dr McDonnell said.

"Terrain contours can be converted into height models which can be used to produce hill shaded maps automatically, and additional maps can be made to show slope and direction of hills."

Dr McDonnell said these maps could be used for evaluating resources such as forestry, agricultural production, minerals, and for monitoring soil erosion, water pollution, and sea resources.

He said the advantage of using E.S.P. software was that the maps, previously produced by hand, could now be made automatically. For example, it might take a developing country many years to produce a series of resource-plan maps by hand whereas with the E.S.P. system it would take only months.

Another advantage of the E.S.P. system is that all programs are in one suite and can be used by a number of computers, both large and small.

Signing the agreement, the Minister of Science and Technology, Dr Ian Shearer, said the E.S.P. software licence was in line with the D.S.I.R.'s policy of encouraging New Zealand companies to take up and sell Government sourced technology, particularly to overseas markets.

In these co-operative arrangements New Zealand taxpayers receive back a substantial portion of profits as royalties or licence fees, Dr Shearer said.

Progeni is already marketing Government developed software such as the train monitor system developed by the Railways Corporation.

CSO: 5500/9042

BRIEFS

STATISTICS INFORMATION COMPUTER--Wellington (Press Assn)--The Government last night opened a new computer system which it was was a major advance in providing official statistical information to the public sector. The Minister of Statistics, Mr Falloon, said it was the first Government computer database to be made so easily available to the public. Subscribers will hire a terminal linked to the statistical data base and use it to withdraw the information required. Mr Falloon said the information network for official statistics (INFOS) contains information on national accounts, economic indicators, price and wage indices, emloyment, production, transport and migration. It also provided financial indicators, balance of payments figures, the external trade position and demographic figures and projections. [Text] [Auckland THE NEW ZEALAND HERALD in English 10 Nov 82 p 5]

CSO: 5500/9042

PRC 'WORLD COMMUNICATIONS YEAR' COMMITTEE SET UP

OW260908 Beijing XINHUA in English 0730 GMT 24 Dec 82

[Text] Beijing, 24 Dec (XINHUA)--The China National Committee for 1983 "World Communications Year" was set up at a meeting here today.

The national committee aims to publicize the importance of communications in national economic and social development and spread information to bring about an expansion in communications infrastructures in China. The activities of the committee will be in keeping with those of the world communications year program.

Chairman of the committee is Zhu Xuefan, vice-chairman of the standing committee of the National People's Congress, and vice-chairmen are Wen Minsheng, minister of posts and telecommunications, and He Ying, adviser to the Ministry of Foreign Affairs.

The United Nations General Assembly chose 1983 as world communications year on 19 November 1981 at its 36th session. In a resolution, the UN General Assembly stressed the need to have appropriate communications infrastructures that will help in the fight against hunger, underderdevelopment and ignorance and strengthen world peace.

World communications year will provide the opportunity for all countries to undertake an indepth review of their policies on communications development and promote the development of communications infrastructures. Financial, material and human resources will be mobilized for expanding communications systems, the General Assembly said.

The China National Committee is composed of leading members of the Ministries of Posts and Telecommunications, Railways, Communications, Radio and Television, Electronics Industry, Astronautics, Foreign Affairs, Education and other ministries and departments.

CSO: 5500/4109

NEI MONGGOL MEETING ON PROTECTING COMMUNICATIONS LINES

SK150931 Hohhot Nei Monggol Regional Service in Mandarin 1100 GMT 14 Dec 82

[Text] From 6 to 9 December, the regional people's government and the Nei Monggol Regional Military District held in Hohhot a regional meeting on protecting telecommunications lines. Attending and speaking at the meeting were Chen Bingyu, vice chairman of the regional government, and Cai Ying, commander of the regional military district.

The meeting noted: Comrade Hu Yaobang said in his report to the 12th CPC Congress that communications and transportation are a basic link and one of the strategic priorities of economic development. He also pointed out that they should be promoted first. This confirms the position and role of communication in opening up a new situation in all fields of socialist modernization. However, in our region it remains a prominent problem that telecommunications lines are damaged by man-made factors. Cases on damaging telecommunications lines keep on coming up. Many loopholes and contradictions still exist in the maintenance and management of telecommunications lines. These problems directly threaten the safety of the party, the government, the army, the people and railway transportation and communication.

The meeting stressed: The regulations on protecting telecommunications lines issued by the state council and the military commission of the CPC Central Committee are an important law to guarantee the safety of telecommunications lines and smooth and unimpeded message transmissions. It is imperative to conduct wide propaganda of various forms on the necessity for implementing the regulations so that the masses will have a sense of responsibility and honor to protect telecommunications lines. The work of protecting telecommunications lines involves many fields. Therefore, it is necessary, under the unified leadership of party committees and governments at all levels, to organize all trades and professions and the people of all our nationalities to act in close coordination with telecommunications departments and public security departments to do the work in a comprehensive way. Public security organs should regard the work as one of the priorities of public security work. It is essential to strengthen management of waste material collection departments to block the ways criminals can go wild. The meeting decided to convene a regional rally at a proper time next year to commend collectives and individuals advanced in protecting telecommunications lines.

CSO: 5500/4108

XIZANG RADIO TO READJUST PROGRAMMING

HK220418 Lhasa Xizang Regional Service in Mandarin 1130 GMT 21 Dec 82

[Text] In accordance with the general task for the new period put forward by the 12th Party Congress and the fundamental nature and tasks of broadcasting stipulated by the central secretariat, Xizang People's Broadcasting Station will carry out some readjustments to its Tibetan and Chinese language programming and draw up a new schedule to come into effect on 1 January 1983. Before the readjustment was made, two leading comrades of the regional broadcasting bureau led a group to Rikaze, Shannan and other areas to listen to the views and demands regarding broadcasting of the peasants and herdsmen, workers, cadres, intellectuals, and PLA commanders and fighters. The new broadcasting station has been drawn up in accordance with the radio station's resources and technical forces and is based on the principle of acting according to capabilities, improving quality, introducing new programs, striving to take advantage of the special features of broadcasting, and gradually creating a new situation in radio propaganda. There are no great changes in original, generally rational programming and scheduling with which the masses are accustomed and familiar.

In carrying out this program readjustment, attent-on has been paid to the local and nationality characteristics of all types of programs. The backward economic state of the region and the low cultural level of the peasants and herdsmen have been considered. As far as possible the programs will be lucid and easily understood and suited to a peasant and herdsmen audience. The Tibetan language hook-up programs, rural science programs, programs in Chamdo dialect, and weather forecasts will express this feature. In all programs, propaganda of the scheme, principles and policies laid down by the 12th Party Congress and propaganda on material civilization and socialist spiritual civilization will be stepped up. In order to cultivate young people into a new generation with ideals, morality, culture and discipline, a new Tibetan program entitled "Friend of Youth" will be introduced, to strengthen ideological education in communism, collectivism and patriotism for young people.

The name of the Chinese-language program "Program for the PLA' will be changed to "Soldiers on the Plateau." It will report on the new achievements of the PLA units stationed in Xizang in building the two civilizations, and on the glorious traditions of our army. It will also introduce some common military knowledge. A literature and art program aimed at the commanders and fighters

will be broadcast every Wednesday and Saturday. In this program, literature and art items requested by PLA cadres and fighters will be broadcast.

More time will be devoted to literature and art programs, which will be richer in content than previously. Apart from broadcasting comprehensive literature and art programs, the station will also assign time to programs on the various forms of literature and art. The Tibetan-language programs will now include songs from the cinema and television and literature, and the Chinese-language programs will include Tibetan music, radio opera, and ballads.

To satisfy the demands of the masses, both Tibetan and Chinese-language broadcasts will carry musical recording programs. This program will carry relatively new outstanding domestic and foreign songs, for the masses to listen to and record.

CSO: 5500/4108

TELEPHONE SHORTAGE IMPEDES ECONOMIC DEVELOPMENT IN ASIA

Kuala Lumpur BUSINESS TIMES in English 10 Nov 82 p 19

[Article by Adlai J. Amor in Manila]

[Text] WHEN C.M. Stephens, former Indian Communication Minister, was confronted by angry politicians complaining about the telephone service, he shouted: "If you don't want your phone, just throw it away. You have got to put up with an over-burdened, overworked telephone system."

Of course the politicians did not throw away their telephones. Neither do many Asians who are fed up with the poor telephone service prevalent throughout the region.

They realise that telephones have become a precious commodity which one just does not throw away no matter how bad the service is. Today, the developing countries of Asia suffer from poor telephone service and a phone shortage.

There are 422,778 telephones in the Philippines, but studies indicate that four million telephones will be needed by the year 2000. However, the country's largest telephone company - the Philippine Long Distance Telephone Company says it can supply only 900,000 of these phones.

Nepal has only 6,000 phones and there is a waiting list for 20,000 more. There are 99,000 telephones in Sri Lanka but 10,000 people are waiting for a line. In Thailand there are over 600,000 phones and half that number is itching to get a line.

The longest waiting list is in India where two million people are hoping for a phone. There are about two million phones already being used by the 700 million-odd Indians.

The signs of this acute shortage are manifested in many ways. A black market operation thrives in Colombo where one can buy a phone for 20,000 rupees (US$1,300). In India, companies have sprung up which will dial your calls - for a fee, of course.

Businessmen in Manila are cautious about moving their offices these days. If they do, first thing they look for is a telephone and only then will they consider the building space.

For the lucky few Asians who are able to get a telephone line, that is just the beginning of their battle against a poor service. Although there are plans to improve phone service, telephones are low in the list of development priorities of Asian countries especially when compared to food, education and military expenditures.

Yet, to some telecommunications experts, the sorry state of the region's telephones - or the lack of it - has been one of the barriers to the rapid modernisation and economic development of most of Asia.

"Economic development establishes the demand for increased telecommunications facilities; vice-versa, the lack of such facilities hampers economic development," says a recent study by a US consulting firm, Arthur D. Little International Incorporated.

The relationship between a good telephone system and rapid economic development is exemplified by such countries as Japan, Singapore and Taiwan. These three rank among the top 20 countries with more than 3.5 telephones each.

Japan, a country of 116 million people, has 53 million telephones. It is second only to the United States in the number of telephones. Singapore has 23 telephones per 100 people while Taiwan has 21 telephones per 100 people.

The record for other Asian countries, however, are dismal. In general, there is less than one telephone for 100 people throughout the developing countries of Asia.

Realising the relationship between economic growth and a good telephone service, many Asian countries are now slowly expanding their services. China intends to spend 280 million yuan (US$136.8 million) this year, increasing the number of phones by 700,000 or a total of 2.7 million phones.

Indonesia is expanding its telephone service using South-East Asia's first communications satellite, the Palapa. (The Palapa is named after an Indonesian delicacy made of cake and palm sugar). In all, the project, consisting of 40 ground stations and two satellites, will cost US$179 million.

Pakistan intends to launch its own communications satellite by 1986, costing some US$150 million. This will undoubtedly increase the number of Pakistani phones from the current 350,000.

For the already rich Asian countries, expansion of their telephone system will mean greater economic benefits. Japan and Singapore are already using the latest communications technologies which enable their computers to "talk" to other computers via the telephone.

This has been brought about largely through breakthroughs in fibre optic technologies. This technology, described as what the modern car has been to the horse and cart, converts messages into light waves and sends it flashing close to the speed of light through quartz tubes as thin as human hair.

This enables messages to be sent faster since it can carry 5,000 times more information than the current pair of copper wires.

While these expansion plans have yet to be realised, average Asian telephone users will still have to contend with poor telephone services.

Despite the efforts to upgrade them, Asia's telephones will still remain over-worked and over-burdened for some time to come. — *Depthnews Asia.*

CSO: 550/8504

BRIEFS

LANDSAT STATION--The construction of a 186 million-baht satellite ground receiving station in Thailand has already been completed. According to the secretary general of the National Research Council, the station will help the government obtain accurate survey results of the country's natural resources, such as identification of agricultural land use pattern, forest area assessment, geological mapping, assessment of areas planted with economic crops, mapping of mangrove forests and survey of natural water resources. This remote sensing program will greatly benefit the country's economic development and will help save time, budget and manpower to be consumed in ground surveying program. [BK230433 Bangkok Domestic Service in English 0000 GMT 20 Sep 82]

CSO: 5500/4319

PLAN FOR RADIO-TELEVISION NETWORK EXPOUNDED

Hanoi TAP CHI HOAT DONG KHOA HOC in Vietnamese No 9, Sep 82 pp 38-39

[Article by Nguyen Van Ngo: "Planning Our Country's Radio and Television Network"]

[Text] According to the statute on the organization and activities of the Science and Technology Council as drafted by the State Science and Technology Commission, the Science and Technology Council has the duty to hold debates and to contribute its views to the minister on the draft scientific-technological policy of various ministerial departments and on the draft long-term and 5-year scientific-technological plans of the ministry (Chapter I, Article 2).

Since the [Central] Radio and Television Commission of Vietnam does not yet include a planning institute and a science and technology department to draft the above-mentioned plans, the task of drafting and approving this sector's 15-year plan is assigned to the Science and Technology Council.

This course of action is indeed not without precedent in the world. Today there are many governments in the world which have set up, under one form or another, a council to study the information policy and which consider this council to be one of the means enabling the masses to participate in formulating such a policy and also as a place for conducting the task of assigning research, collecting information and organizing seminars of different scopes with the aim of determining important trends and key problems and hence formulating policies or, in a consultative capacity, voicing views and submitting them to the government and organs in charge of the information sector's management. In general, such councils are consultative ones whose founding statutes guarantee their long-term activities and endow them with the necessary budget and staff. These councils are composed of political leaders, specialists in the managerial mechanism and information field and persons specialized in in-depth research into various information sciences. One such council was founded in Finland on 28 June 1972 and, in the course of planning our radio and television network, we have studied and applied the experiences drawn from this organization's activities.

Generally speaking, the Council is used as an instrument under the following circumstances:

--Need for a large volume of information necessary for reaching the most rational decision;

--Need to know the views of many prestigious specialists prior to deciding on important problems;

--Need to have executive units grasp thoroughly and comprehensively any decided problems so as to implement tasks satisfactorily, self-consciously and clever y; and

--Need for coordinated action by many units.

For the benefit of the Radio and Television Commission of Vietnam, we have invited an additional number of cadres outside this organ to act as Council members, and also a number of specialists who do not belong especially to the information sector but who have a deep understanding of the task of choosing among many decisions; we have also invited the comrades who are leaders of the Commission and those who are heads of planning and technical management units but who have never participated in the Science and Technology Council.

The cadres participating in this task are divided into three groups--a standing group, a specialized group and a data group. The standing group is responsible for drawing up an action program, raising questions for discussion, issuing mathematical problems to the data group and deciding on methods of collecting and treating information. The specialized group is entrusted with specific topics and has to prepare reports to prearranged meetings. It is precisely this group which has submitted important reports on the present situation in the radio and television networks, assessed the wave scopes of the medium wave broadcasting stations existing in the country, evaluated methods of improving the anticipated development of the television transmitting network by 1990 and chosen [the right] decisions after studying the specialists' opinion, etc. The data group collects the data obtained so far, analyzes and collects information, searches for methods of calculating the areas covered by the wave scopes of radio and television stations by taking the specific terrains into consideration, and seeks frequency planning methods. Moreover, the Council also uses the result of research themes on wave transmission, antilightning equipment and so forth as obtained from scientific symposiums.

The work program is divided into three stages:

--The first stage sets forth the sector's policy (other countries have worked out perfect state policies on mass information for each historic period).

--In the second stage, the existing networks are assessed and measures aimed at improving them discussed.

--The third stage is devoted to the making of development drafts for each planning period.

As currently defined by international radio and television organizations, setting forth the sector's policy means determining functions, targets, spheres, scales (international, national, regional, local...), coverage limits, the form, type and quality of information, the structure of the information organ and so forth.

After consulting the United Nations documents on information policies and reading materials dealing with the mass information policies of many countries such as Hungary, Yugoslavia, India, Indonesia, Algeria and the Philippines, we have drawn an outline of our sector's policy. The remaining work to be done is to reexamine the following documents: "Report by the Radio and Television Commission on the Economic-Technical Situation," "A Draft of the Scientific-Technical Revolution in the Radio and Television Sector," "Minutes of the Radio and Television Cadres' Conference to Study Resolution No 37," "Report on the Radio and Television Situation After a Year of Implementing Resolution No 37" and "Wartime Plan of the Vietnam Radio and Television Sector"--and then to collect information for rewriting purposes according to the above-mentioned outline. The draft outline has been submitted to the chairman of the Radio and Television Commission and circulated among many specialists within the sector as well as many outside experts with a view to collecting their views for reference purposes. Afterward, a 3-day conference was convened to discuss the task of drafting a radio and television plan. Since then, we have set forth 10 functions for the radio and television sector in Vietnam and 11 points to be used as a basis for planning and have also determined the major targets and the formulas that will systematically lead to these targets within a planned period of 15 years. Planning has been based on initial data (overall situation in the country economic bases, international relations situation, imbalance in the sector, etc.) and also on [data] treatment principles (with regard to inheritance, dynamics, problems left behind by history, etc.) in order to direct the choice of a strategy during the planning process.

The assessment of the network is carried out in two steps. The first is to give a detailed report on the present situation in the radio and television network on the basis of the information supplied by the leading comrades in the Radio and Television Departments. In addition, we have used the information collected at symposiums on television technique, at conferences of directors of regional radio stations across the country and at symposiums on radio broadcasting in the border provinces. The second step includes symposiums held to debate the network assessments made and improvement methods suggested by specialists from the specialized group. Certain views expressed at these symposiums have been imparted to foreign radio-broadcast, posts-and-telegraph specialists who are on mission in Vietnam and whose opinion has been sought as in an exchange of views between experts. The conclusion drawn from the debates has been sent to specialists working far from Hanoi to expand this exchange of views. Some plans have been reconsidered, reanalyzed and retested and most of these tasks have been assigned to students who do the planning work for their graduation or to young colleagues who had just graduated.

Most of the development forecasts are based on the specialists' opinion, on the reference materials of developing countries and on a comparison with the development situation in the Third World countries whose economic [development] stages are similar to those of our own country at the present time and in the next 15 years. For the debates, we have chosen some key problems about the scientific-technical policy of our sector. Prior to the debates, all the views supporting each plan have been sorted out and sent beforehand to the participating members. During the debates, an identity of views has usually been achieved regarding the policy to be applied under certain limited conditions which are mostly of a historical or economic nature or which involve international relations. These unanimous views have had to be fully expressed concerning all of these limitations.

In organizing debates during the planning process, we have found that the debate organizing model presented in Nguyen Duy Tuong's newspaper article is a very good one (TAP SAN KHOA HOC VA PHAT TRIEN No 3, April 1980, Ho Chi Minh City).

Writing up the plan has been the hardest brain work. Though not being the last person to bear responsibility for the chosen strategic decisions, the plan writer must be not only the first specialist to analyze these decisions but also one of the last experts to do the analysis. The writing process is one which involves recapitulation, request for instructions and reference work. In this respect, we have been assisted by some comrades from the Posts and Telegraph Department who are specialized in planning.

Finally, we have found that the Council is an organizational form which can carry out specific projects provided there are:

--A suitable and clear-cut statute allowing it to do long-term tasks;

--Economic means and a permanent staff composed of few members who must, however, be fully enthusiastic and qualified to ensure the execution of tasks;

--A support given by various scientific organs, schools and scientific information organs; and

--A scientific working method and a sound methodology.

9332
CSO: 5500/4314

OFFICIAL TELLS PLANS FOR COLOR TELEVISION

Calcutta THE STATESMAN in English 1 Dec 82 p 9

[Text] NEW DELHI, Nov. 30.—Doordarshan colour transmissions would continue even after the Asiad Games, Mr S. B. Lal, Secretary in the Ministry of Information and Broadcasting, announced here today.

He told a Press conference that colour telecast, in the near future, would remain restricted to music and dance items, quiz shows, sports events, news and current affairs programmes, interviews and some Krishi Darshan programmes. The colour programmes would last 60 to 90 minutes.

He said efforts were being made to telecast the weekend feature films and the film-based programme Chitrahar in colour.

Initially that would be done by transferring 35 MM films to video cassettes. "Most probably, we shall see the feature film in colour from this week", Mr Lal said.

Doordarshan plans to acquire four sets of colour telecine chains, which can directly telecast 35 MM films. The necessary orders have been placed and the equipment should be in India within six months, Mr Lal said. The equipment would be distributed to the four major centres.

The I and B Secretary announced that the forthcoming Indo-Pakistan cricket Test series, the International film festival in January, the Republic day parade and the Non-Aligned Summit in March would be telecast in colour.

Of the 41 TV centres in the country, all but one were capable of colour transmission now, he claimed.

Asked why the Ministry was not ready to go in for full-fledged colour transmissions—though it had been decided on way back in April—the Secretary said finances were the main problem.

CSO: 5500/7046

BRIEFS

TRIAL TELECASTS--NEW DELHI, Nov. 17--Fourteen of the 20 low-power TV transmitters in various parts of the country have started trial telecasts, it was officially announced here yesterday. The transmitters are at Jammu, Simla, Suratgarh, Trivandrum, Kakinada Bhopal, Agartala, Aizawl, Gangtok, Gauhati, Imphal, Itanagar, Kohima and Shillong. The centres at Deoria, Port Blair, Indore, Malda, Bhubaneswar and Patna will become oeprational in the next three days. These centres will telecast the Asian Games and other programmes from Delhi through INTELSAT. The Asiad opening and closing ceremonies, and most other events would be telecast in colour. The daily transmission hours would be between 10 a.m. and 1 p.m. and from 2 p.m. to 10 p.m. There would be a 45-minute capsule of "daily highlights" between 8.30 p.m. and 9.15 p.m. [Calcutta THE STATESMAN in English 18 Nov 82 p 7]

BHUBANESWAR TELEVISION TRANSMITTER--BHUBANESWAR, Nov. 20--The capital city of Orissa came on the television map of the country with successful transmission of the inaugural ceremony of the Asian Games yesterday, reports UNI. The U.S. made low power transmitter installed in the city began relaying programmes received through Intelsat at 3 p.m. The trial telecast, which was to have started from Delhi earlier, was delayed because the transmitter could not be installed for lack of proper equipment. A team of engineers were summoned from Delhi on Thusday and technicians from the State-owned Konark television also helped instal the transmitter. [Calcutta THE SUNDAY STATESMAN in English 21 Nov 82 p 7]

INDIA PLANNING REMOTE SENSING SATELLITE--BHUBANESWAR, November 21 (UNI)--The Indian Space Research Organisation (ISRO) director, Mr. U. R. Rao disclosed here today that India was expecting to build her own remote-sensing satellite by 1986. This would help the country in her agricultural research programme in a big way, Prof. Rao told UNI in an interview. The new satellite would have parts of the technologies of APPLE and Bhaskara, as also the latest ones, to make it sun-synchronour, he added. Prof. Rao said the multi-utility satellite would be christened, only after it aws launched. Prof. Rao said the project had been approved by the government, and work was already in progress. He, however, added that it was too early to guess about the cost involved. He also disclosed that India would launch, in about three months, SLV-3, a launch vehicle that would be a vast improvement on the two earlier ones. Thereafter, by 1984 the launching vehicle would be upgraded to ASLV (augmented satellite launch vehicle) that would easily carry 150 kg, satellites, to be followed by

polar SLV, a 1000-kg. carrier. While the ASLV programme had already been approved by the Central government, the future INSAT programme, to be solely built by India, was yet to be approved, he said. [Bombay THE TIMES OF INDIA in English 22 Nov 82 p 4]

FACSIMILE TELEGRAM TRANSMISSION--NEW DELHI, Nov. 21--Facsimile transmission of telegrams by the Posts and Telegraphs Department has been introduced in India between New Delhi and Jaipur. This enables the transmission of photographs, grpahics, charts and documents also. The maximum acceptable dimensions are 25 cm by 18 cm. This facility is available at the Central Telegraph Office in Eastern Court, New Delhi. The equipment has been manufactured by the State-owned Electronics Corporation of India, Hyderabad. [Madras THE HINDU in English 22 Nov 82 p 16]

NEW INFORMATION ORDER URGED--Paris, November 27 (PTI): India has stressed the need for a new world information order and urged UNESCO to formulate programmes and projects for development of a communication infrastructure in developing countries. Addressing the fourth session of the general council of UNESCO here on Thursday, Mrs. Sheila Kaul, minister of state for education and leader of the Indian delegation, recalled that most of the developing countries lack the requisite infrastructure and had scarcity of equipment and qualified staff. The situation had to be remedied. India, she said, had offered to share its facilities for training in the field of mass communication. She reaffirmed India's commitment to continue to co-operate and share its facilities. About the medium-term draft for 1984-89, which the present session is considering, Mrs. Kaul praised its "boldness of approach and realistic analysis of problems and issues." However, she favoured a more radical attention in the plan to education for international understanding and peace. UNESCO must undertake a deep study on the themes of the relation between science and spirituality, she added. Mrs. Kaul welcomed the special emphasis on scientific research and suggested a strategy whereby scientific research could become a universal pursuit independent of "inequalities among nations." [Text] [Bombay THE TIMES OF INDIA in English 28 Nov 82 p 7]

SATELLITE LAUNCH VEHICLE--Cochin, November 28 (PTI): India has begun work on a Rs. 300-crore polar satellite launch vehicle (PSLV) at the Indian Space Research Organisation (ISRO) at Trivandrum. It would take about five years to fabricate the vehicle and in all probability, the launching of the PSLV will take place from Sriharikota in Andhra Pradesh in 1987, according to a top official of the Vikram Sarabhai Space Centre (VSSC), Trivandrum. The Centre's clearance for the project was obtained recently. The spokesman said almost all the components, except very highly sophisticated electronic items, would be indigenous. [Text] [Bombay THE TIMES OF INDIA in English 29 Nov 82 p 3]

APN-PTI-UNI COOPERATION--Calcutta, Dec 1--Vice-Chairman of the Novosti Press Agency K A Khachaturov said here yesterday that following discussion between his agency and the PTI board, and the general manager of UNI, prospects for further development of cooperation between APN and Indian News Agencies have been brightened. Mr Khachaturov was addressing a press conference at the Calcutta airport. [Text] [New Delhi PATRIOT in English 2 Dec 82 p 9]

CSO: 5500/7047

BRIEFS

BUSHEHR TV STATION OPENS--The new Bushehr 10 kw television station, the construction of which started 18 months ago, was opened by the managing director of the Voice and Vision of the Islamic Republic of Iran, Mr Hashemi, yesterday morning. Members of the organization's managing council and the Bushehr governor general were present at the ceremonies. This television transmitter can now bring the rest of the province and some of the countries of the Persian Gulf region into coverage area. [Text] [GF201852 Bushehr Domestic Service in Persian 1330 GMT 20 Nov 82]

ESFAHAN TELEVISION INAUGURATION--The television relay station of (Hanna) which was completed by the Esfahan technical unit was opened on the occasion of 'Id. The relay will enable local citizens to watch the programs of the Vision of the Islamic Republic of Iran on Channel 4. [GF010530 Esfahan Domestic Service in Persian 1530 GMT 7 Oct 82]

CSO: 5500/4709

BRIEFS

REPLACEMENT OF DAMAGED CABLES--Damaged underground telephone cables are to be replaced with new, water-proof ones in Kuwait, according to Abdullah Al-Dahham, Director of the Telephone Network Department. He said that the measure will cost about 1.4 billion dollars. He added that the damage to the ones in existance was caused by the contractor's negligence. Fines running upto 350,000 dollars did not have any effect. Al-Dahham said that the overhead cables in Umm Al-Himan, Jahra and Wafra, cost about 540,000 dollars. Several telephone lines running above ground were damaged by citizens out shooting birds. He said that these will be replaced by cables running underground. He added that the number of telephones in Kuwait will be increased to 329,000 from the existing 184,000. [Kuwait ARAB OIL in English No 11, Nov 82 p 11]

CSO: 5500/4510

BRIEFS

RADIO PLANS GLOBAL SERVICE--THE UAE has awarded a $70 million contract to the Swiss-based firm Brown overi to expand Abu Dhabi's international radio network into a world service. The project, expected to take 28 months to complete, involves the construction of two transmission stations, one short-wave and the other medium-wave in the Al-Dhabiah area 30 kilometres southwest of Abu Dhabi city. The expanded network will be able to operate 24 hours a day on 10 frequencies, while a scheme to increase the number of languages used from four to 10 is being considered. The medium-wave station will have two linked 1,000-Kilowatt transmitters covering the Gulf and other parts of the Middle East, India and Pakistan. The short-wave station, with four 500-Kilowatt transmitters will broadcast to the Americas, Europe, West Africa and the Near and Far East. Five new studios are planned for transmission and programme production. [Paris AN-NAHAR ARAB REPORT & MEMO in English No 38, 8 Nov 82 p 6]

CSO: 5500/4509

BRIEFS

'PANA' BEGINNING DATE SET--Paris, 30 Dec (AFP)--The new Pan-African News Agency PANA, will begin to be functional next April, with a production of 25,000 words a day and will have services in French, English and Arabic, but only a dozen journalists will have PANA membership cards. This was announced by the agency's director, Diallo Sheikh Ousmana of Niger, in an interview with LE MATIN newspaper. PANA will have its headquarters in Dakar and five regional offices in Kinshasa, Lagos, Lusaka, Khartoum and Tripoli which will send news items from the national agencies to the network. "If there is a war between Ethiopia and Somalia, we shall transmit what the Ethiopian and Somalian news agencies give us," Diallo Sheikh Ousmana pointed out when asked what PANA would do in case of a conflict between two African states. Concerning the journalists, there is no criterion of nationality. What matters, the director stated, apart from professional quality is the pan-African commitment of the journalists and their ability to forget their national etiquette in order to place themselves in the service of Africa. The PANA director predicted that there would be pressures. "But we will accomplish our mission which is to be an agent of development. Also, there are some democratic countries in Africa, like Senegal or Nigeria, which will serve as beacons for others," he said. [Text] [AB301453 Paris AFP in French 1354 GMT 30 Dec 82]

CSO: 5500/73

DOUALA RADIO EQUIPMENT TO BE OPERATIONAL SOON

Yaounde CAMEROON TRIBUNE in French 30 Nov 82 p 3

[Article by I.K.: "The Radio-Douala FM Transmitter Will Start Operating in December, the 100-kW Transmitter in February 1983, Minister Bwele Disclosed During His Visit to Douala"]

[Text] The minister of information and culture, Mr Guillaume Bwele, arrived in Douala yesterday. Yesterday morning, Mr Bwele--who is accompanied by his closest associates--visited the site of the 100-kW transmitter being built at New-Bell. The minister of information and culture was to inquire about the progress of the project and about the difficulties encountered when work started.

From Mr Bwele's conversation with Thomson's engineers, we learned that the 100-kW Radio-Douala transmitter will be placed into service late in February 1983. In the meanwhile, an FM transmitter will be installed next month to complement existing equipment. This will make it easier to listen to Radio Douala.

Mr Bwele's second stop on his visit yesterday was at the Bonanjo low-frequency center. These are existing facilities which have been operational for a long time. The work contemplated involves developing them progressively. For instance, Radio Douala needs a second studio to meet the requirements of Radio Cameroon's new programming schedule which, as is known, brought about changes in provincial station schedules. The second studio will be all the more necessary as, breaking with habits and schedules that are several years old, Radio Douala is now broadcasting from 5:30 to 6:00 and from 17:30 to 12:00.

Mr Bwele's visit to Douala continues today. This morning, his schedule includes a working session at the provincial delegation for Information and Culture in the Littoral. This working session will essentially be devoted to Radio Douala's new schedule which must be coordinated with that or the national radio inaugurated last 11 October.

9294
CSO: 5500/67

ETHIOPIA LINKED TO TANZANIA THROUGH PANAFTEL SYSTEM

Addis Ababa THE ETHIOPIAN HERALD in English 17 Dec 82 pp 1-2

[Text] Dodoma (Shihata)--The Minister for Communications and Transport, John Malecela, Wednesday hailed the launching of the Pan-African Telecommunications Network (Panaftel) as a victory against colonialist manoeuvres and efforts to bind African countries to their telecommunications networks.

The minister formally inaugurated the Panaftel, Tanzania region when he talked direct by telephone to the ministers responsible for communications in Zambia and Ethiopia.

Malecela said that before Wednesday, it was possible to talk direct to the two countries without having to go through Europe, paying the costs in foreign currency.

With the launching of Panaftel's Tanzania region, the country would now be able to talk direct with Djibouti, Ethiopia, Sudan, Zambia and Malawi.

The project, financed jointly by the Tanzania government, Italy and Japan, cost a total of 500 million out of which 300 million was in foreign currency.

In his address, the chairman of Tanzania Posts and Telecommunications Corporation (TPTC), F. J. Mchauru, praised the Tanzania Government for having taken deliberate steps to strengthen telecommunications inside the country which today contributed immensely in linking it with its neighbours and the international community.

Giving a brief history on the Panaftel, Mchauru said at the first summit of the heads of state and government of the Organisation of African Unity (OAU) in 1963, the leaders accepted a proposal by the International Telecommunications Union (ITU) to link up all the independent African states with telecommunications network.

The idea gave new impetus towards establishing the network in all ITU meetings since then, Mchauru said.

But even while these efforts went on, the TPTC had already conceived its own microwave system, linking Dodoma with Mwanza Mwanza with Bukoba, and on to Kignoma.

The microwave project, Mchauru said had now been completed and was in operation, and would later link Kogoma with Burundi, Ngara (in Kagera Region, Tanzania) and Rwanda, and ultimately Uganda.

CSO: 5500/74

BRIEFS

FIRE DAMAGES COMMUNICATIONS OFFICES--Enugu, Jan 1 (NAN)--Parts of the building housing the Nigeria Television Authority (NTA) and the Anambra State Broadcasting Corporation (ABC), both in Enugu, today went up in flames. A team of fire fighters from a nearby fire service station however checked the fire which started from the top-most floor before it could engulf the entire building. A correspondent of the News Agency of Nigeria (NAN) who visited the scene reports that three offices belonging to the ABC which was occupying the floor were burned. A source told NAN that the fire started in the accounts department of the ABC, which according to the source lies exactly above the NTA general manager's office. The cause of the fire is not yet known but the NAN correspondent reports that a team of policemen were already investigating. The general manager of the NTA, Eddie-Brown Ayoughu, who arrived at the scene, told newsmen that he was dumbfounded. He said, "I am so dumbfounded by the fire incident that I am at a loss to say anything." It will be recalled that the ABC transmitting station was burned down last week by two unknown persons who arrived on a motorcycle. [Text] [AB011304 Lagos NAN in English 1238 GMT 1 Jan 83]

NAN OVERSEAS OFFICES--Lagos, Dec 31 (NAN)--The News Agency of Nigeria (NAN) plans to open five new offices abroad in 1983 for a more effective coverage of world events, the chairman of the board of directors of the agency, chief Walter Ofonagoro, said yesterday in Lagos. Speaking at the NAN end-of-year party, chief Ofonagoro said that the new offices would be in Washington, D.C., New Delhi, Belgrade, Moscow and Tunis. He said that NAN was also planning to increase the number of its foreign offices from the present five to 20 as part of its expansion programme. The chairman reiterated that the ultimate aim of NAN was to operate a 24-hour service, adding that the board had decided to reorganise the agency to make it more credible and efficient. Under the planned reorganisation, chief Ofonagoro said that the zonal offices would be scrapped and zonal desks would be created in Lagos to ensure effective communication with all the states in the federation. [Excerpts] [AB312138 Lagos NAN in English 1520 GMT 31 Dec 82]

CSO: 5500/76

BRIEFS

MICROWAVE CHANNELS--Forty-eight microwave channels and telephone lines linking Kampala to Entebbe have been commissioned by the minister of power, posts and telecommunications, Mr Akena Pojok. The minister also announced that Uganda will have a total of 180 new microwave telecommunications channels by next month. Addressing a big crowd on the occasion, the minister said that this is the first major phase of the rehabilitation of telecommunications in Uganda. The minister told his audience that people in Kampala and Entebbe can now dial to each other or international numbers and communicate with the people within a few seconds. [Excerpts] [LD120230 Kampala Domestic Service in English 1400 GMT 11 Dec 82 LD]

CSO: 5500/68

MINISTER HAILS DAR ES SALAAM, LUSAKA MICROWAVE LINK

Lusaka DAILY MAIL in English 16 Dec 82 p 7

[Text] **DAR-ES-SALAAM. — Acting Minister of Power, Transport and Communications, Mr Haswell Mwale has applauded the Tanzanian government on the inauguration of the Tanzanian sector of the Dar-es-Salaam-Lusaka microwave link.**

Mr Mwale said Tanzania is the first country with which Zambia has a 90 channel microwave link with facilities for television transmission.

The minister said the inauguration underlines the importance the two countries place on telecommunications and its effect on other sectors of the economy.

Mr Mwale told his Tanzanian counterpart, Mr John Malecela that African governments have been concerned with the development of telecommunications in Africa as early as 1962 when the first plan committee meeting was convened in Dakar, Senegal.

He said since then, African administrations have actively reviewed activities regarding the development of the pan-African telecommunications network.

Zambians can today speak directly with people in Kenya, Tanzania, Malawi, Zimbabwe, Ethiopia and Mozambique via microwave or other landline facilities without transmitting through European countries.

Mr Mwale informed Mr Malecela that other African countries can have connected communication links with Zambia through those that are directly linked to Zambia.

He said the Dar-es-Salaam-Lusaka microwave link will not only benefit the two countries but also Zimbabwe, Malawi, Kenya, Uganda and Ethiopia and those countries with links to these countries.

The minister regretted the fact that Eastern and Southern African countries have no direct telecommunication facilities with West African countries.

To rectify this, Mr Mwale said Zambia expects to open direct telephone, telex and telegraph services with Nigeria via satellite before the end of the year.

The minister disclosed that the Malawi-Zambia link is expected to be operational in the second quarter of next year while the link with Zimbabwe and through Botswana by 1984.

"All these efforts augur only too well to benefit our countries within the Southern African Development Co-ordinating Conference (SADCC) and the Preferential Trade Area of the eastern and southern region and form a vital basis and tool for economic and social co-operation among our states," he said. — ZANA.

CSO: 5500/75

OPERATION OF NORDIC MOBILE PHONE SYSTEM EXPLAINED

Copenhagen BERLINGSKE TIDENDE in Danish 7 Nov 82 Sect III p 3

[Article by Finn Knudstrup]

[Text] Over 15,000 Danish drivers have a telephone in their car. Many of them are sorry they already have a car telephone, because the world's most advanced car telephone recently was put on the market. It is computer controlled and fully automatic.

Nordic cooperation has resulted in the "Nordic Mobile Telephone" (NMT)--a system that makes calling to and from an automobile as simple as calling from an ordinary telephone. With earlier models operator assistance was required and it was necessary to tell the operator where the car was located. With the new NMT system a computer locates the automobile, regardless of its location in the Nordic countries. If the driver is not in the car, the telephone is kind enough to transfer calls--for example, to the driver's hotel.

BERLINGSKE SONDAG tested the NMT system. The Danish AP Radiotelefon, produced by a subsidiary of Philips, was tested. The AP telephone is the fastest selling model in the Nordic countries.

First of all, it is just plain fun having a telephone in your car. Within a few days, however, you learn to save time and milage by using the phone wisely. I enjoyed my AP telephone both in Greater Copenhagen and on the long highways of Jutland. I made many calls while driving, got work done, avoided useless trips, and saved time. Having a car telephone is no luxury for a professional driver who spends most of his working day behind the wheel. I believe it is a good investment for a firm to provide a traveling employee with a mobile telephone.

But how do you operate this advanced mobile telephone, 9,000 of which recently were ordered by Saudi Arabia (worth 250 million kroner to Danish industry)?

It Is This Easy

Calls from the car: The "receiver" itself has pushbuttons and a digital display. The user pushes the desired number, for example 01 15 75 75 for BERLINGSKE

TIDENDE. He then presses a button to transmit this number and then waits for an answer (through a speaker in the car). Then he can speak either into a microphone on the steering column or pick up the receiver and communicate just as he would with an ordinary telephone. In case the number is busy, the telephone has a memory and will try again at the touch of two buttons. Often-called numbers can be stored in the telephone so that it is necessary only to press 01 for BERLINGSKE TIDENDE, 02 for your home number, etc. Sixty such numbers can be stored in the telephone.

Calls to the car: Dial the car's eight-digit number and advanced electronics in the automobile and at the phone company see that the call goes through in seconds, regardless of where the car is located in the Nordic countries. The car continuously broadcasts radio waves. A central computer in Copenhagen detects the car's location and directs the call to the nearest transmitter. Then a signal is heard and the driver lifts the receiver or pushes a button to speak without holding the receiver. If no one is in the car, calls can be transferred to another number. In this way, calls can go through without operator assistance.

Calls from car to car: Simply key in the car's number and contact is made.

The telephone features: A receiver with built-in pushbuttons and a digital display, supplemented by a microphone and speakers for communicating without lifting the receiver. The only other required equipment is a 75-cm short antenna and a large "cigar box" in the trunk. That is all.

The price: The AP Radiotelefon costs just under 20,000 kroner installed. Competing telephones cost about the same, although the AP costs slightly less than most others. There is an initial fee of 300 kroner for the service and the quarterly fee is 175 kroner. Domestic calls and calls to the other Nordic countries cost 2.50 kroner per minute, while the usual rates apply for calls to other countries. In other words, the telephone is expensive to acquire, but not particularly expensive to use.

Misuse: The telephone can be protected from theft by removing the receiver from the car at night. A personal code must be entered, so that outsiders cannot use the phone without the owner's knowledge.

Conversation With United States From Funen

The telephone and I became close friends during the week of testing. On the first day I was driving to catch a ferry from Halsskov. I called the paper to wish my colleagues a good weekend and was given a list of people to call. I made these calls out on the highway. I spoke without lifting the receiver, although other drivers must have thought it strange that I apparently was talking to myself.

The paper wanted a report on the weekend traffic. I gave them a report as I drove across Funen. I read the report, which was written on the ferry, over the car telephone to a tape recorder in Copenhagen. The next day I tested the telephone at various locations on Funen and in Jutland--with no problems. I also had no problem calling from Flensborg where I got away with a cheap call, since the telephone failed to detect that I was in Germany.

On the way home I gave the telephone its ultimate test: I wanted to call a Dane I knew in the midwestern section of the United States. It was quite simple: press 009 for a call abroad, 1 for the United States, and then the ten-digit number in the United States. The call went through in 10 to 15 seconds and my friend in America said he could hear more clearly than over an ordinary telephone. Still, it was a strange feeling. My voice was transmitted from an automobile on the highway up to a radio antenna on Funen, via cable to Copenhagen, and then by satellite to Indianapolis.

While I was on the road, calls also were made to my Fiat Ritmo. I had given the number to some friends and they simply dialed the eight-digit number of the car. Some even called from their own cars with the NMT system.

In Summer Cottage

I gave up the AP telephone and the Fiat Ritmo with a feeling of loss. I had become dependent on the car telephone, just as we are dependent on conventional telephones. I gave the telephone top marks for reliable operation, amazing simplicity, an attractive and functional Danish design, fine sound quality, modest space requirements, and for the ease with which the phone can be moved from one car to another. It is conceivable that competing telephones are just as good and can do just as much or more. I have not tested them, but the Danish AP seems to meet all the requirements of the professional driver. I also had heard from other drivers that the AP telephone had a good service record. The device is programed to contact the nearest of AP's 119 service centers when a certain button is pressed.

If you have a boat or a summer cottage, you can get a special carrying case with an antenna and a battery for the receiver. It is possible literally to use the device on land, at sea, and in the air.

When the skeptics saw the phone, they said, "It will only cause you more stress." This is both true and false. If you are so proud of you telephone that you give your number to everyone who wants it, the telephone may ring constantly. Only you colleagues at work and your family should have the number. In this way, the mobile phone can reduce stress on the job, since it is good news when you receive no calls. It also reduces stress to transmit information and messages immediately without looking for coins for a pay phone which probably has been broken by vandals in any case. It is possible to call from traffic jams, while others drum nervously on their steering wheel. You can call for help from an isolated, snow-covered highway or from the scene of an accident. All special telephone services are available, including a special service that gives drivers extra time to memorize or jot down numbers. Having a telephone in your car gives you a feeling of security.

On the last day of the test I was to meet a source in town for a story. As always, I was 5 minutes late. I called him with my car telephone while I was stopped at a traffic light. My source answered and asked how far away I was. I flashed my headlights and said, "Can you see a silver-colored Ritmo in your rear-view mirror? I am sitting in it."

My source also had a car telephone and he was as late as I was.

9336
CSO: 5500/2553

FRG, FRANCE'S RESCUE SATELLITE

Paris ELECTRONIQUE ACTUALITES in French 26 Nov 82 p 14

[Unsigned article: "German Competitor for the Argos/Sarsat System?"]

[Text] The German companies MBB (Messerschmitt Bolkow Blohm) and Erno, with the support of the FRG Ministry of Research, have begun the development phase of a system for satellite location of distress signals. This system, named SERES, would thus become a competitior of the Argos/Sarsat system, for which CNES (National Space Studies Center) is the operational prime contractor.

SERES would be based on satellites in polar orbit at an altitude of 12,000 km, and would transmit in the L-band (1.6 GHz) just as the Inmarsat satellites, which they in fact would complement. Inmarsat (or Intelsat) receivers are already offering distress signal transmissions, but their coverage is incomplete and their size and cost limit them to very large ships. The SERES satellites would complete this coverage by serving as relays for land stations and Inmarsat satellites. Signals would be located with an integral Doppler method with simplified transmitters.

This system would appear to try to insert itself in the "legal" gap between the future Sarsat system and the present Argos network, which use frequencies and orbiting equipment reserved for meteorology.

11,023
CSO: 5500/2559

COMMONWEALTH TELECOMMUNICATIONS CONFERENCE HELD IN NICOSIA

Conference Opens

Nicosia I ELEVTHEROTIPIA in Greek 12 Nov 82 p 8 NC

[Excerpt] Speaking at the opening session of the telecommunications conference in Nicosia, Communications Minister Mavrellis said that almost all the telecommunications traffic within Cyprus and over 90 percent of international telecommunications traffic is automatic. There are automatic telephone links with 69 countries and telex links with 147 countries, thus placing Cyprus among the top five countries in the world in this respect. Cyprus is linked with the rest of the world by three overseas cables with 2,340 channels, two ground satellite stations (one for the Atlantic Ocean area and one for the Indian Ocean) as well as a tropospheric and a UHF link. Moreover, a great variety of the traditional telegraphy as well as telefax and datel services, which were introduced lately, are being provided.

Conference Ends

Nicosia Domestic Service in Greek 1730 GMT 19 Nov 82 NC

[Text] The work of the Commonwealth Telecommunications Conference, in which 75 ministers and other representatives from 26 countries participated, ended in Nicosia today. According to an official statement, the conferees agreed to recommend to their governments the replacement of the 1973 agreement of the Commonwealth Telecommunications Organization with new arrangements as of next April. These arrangements provide for greater flexibility to permit member governments to respond to changing economic and technological factors, while at the same time they will be far less expensive to implement.

CSO: 5500/4713

BRIEFS

CYTA SATELLITE STATION USE--According to reliable information, the U.S. Intelligence Agency (CIA)--in addition to the U.S. radio stations--is also using the satellite station of the Cyprus Telecommunications Authority [CYTA] at Kakoratzia for the collection of information. In answer to a question, the government spokesman said that he did not know anything about this matter but that he would investigate it. According to information, U.S. experts are permanently stationed at the Kakoratzia satellite station. It is recalled that the government spokesman stated last week in answer to a question that the Cyprus Government receives $400,000 a year from the Americans as rent for the spy radio stations which are in Cyprus. [Text] [NC200903 Nicosia I SIMERINI TIS DHEVTERAS in Greek 20 Dec 82 p 1]

AIRPORT LANDING FACILITIES IMPROVED--On the occasion of putting into operation the new Instrument Landing System /ILS/ at the Larnaca International Airport, the Association of Air Traffic Controllers /SIAEK/ expressed their satisfaction at the efforts of the Cypriot government and especially of the appropriate sections of the Civil Aviation and Telecommunications Authority to modernize and expand the air navigation aid equipment in the Cypriot air space. ILS is regarded as one of the most accurate aids used in air navigation today. Aircraft equipped with the appropriate electronic equipment use the ILS which is installed near the runways and together with the automatic pilot and other electronic instruments on the aircraft can allow landing at almost zero visibility. SIAEK believes that Cyprus is now in an enviable position regarding the air navigating aids available to air traffic. It also believes that with the planned installation of radar, the control and safety in the air space controlled by Cyprus will reach the level of that in Europe. /Text/ /Nicosia O FILELEVTHEROS in Greek 15 Nov 82 p 1/ 7520

CSO: 5500/4707

BUNDESPOST INCREASES FUNDING FOR CABLE TELEVISION

Frankfurt/Main FRANKFURTER ZEITUNG/BLICK DURCH DIE WIRTSCHAFT in German 30 Nov 82 p 1

/Report signed Fue, datelined Hamburg, 29 November: "Are Cable Networks to Be Profitable in the Long Term?/

/Text/ Bundespost Minister Dr Christian Schwarz-Schilling emphasized that he will submit to all Laender a financial offer for funding the extension of wideband cable television networks. In the words of the Bundespost minister, this offer to make available technical equipment for the use of the new communication techniques does not represent Bundespost interference in the Laender's media policies. "We are merely constructing the motorways; it will be up to the Laender to decide what cars are eventually to drive on them," said Schwarz-Schilling in Hamburg. He intends to meet very soon with the respective Laender ministers to learn their reactions to this Bundespost offer. According to Schwarz-Schilling the Bundespost will make available in 1983 a total of about DM1 billion for the extension of wideband cable networks in the Federal Republic. This is triple the amount of DM300 million earlier earmarked for this year.

Schwarz-Schilling says the decisive question for the Bundespost is the long-term profitability of the cable networks. Profits depend primarily on the density of subscribers, and that in turn depends on the amount the Bundespost charges for a hook-up. The attraction of the networks will be very important. A hook-up gets to be interesting for the subscriber "once all programs 'in the air' are fed into the system." Schwarz-Schilling considers as "in the air" all third television programs, the programs transmitted by countries bordering on the FRG as well as regional and local programs--whether transmitted by public or private agencies. The Bundespost minister described his assignment as arriving at a consensus with the Laender whether the Bundespost will be able to provide the technical prerequisites.

As regards the much disputed glass fiber material (to replace the copper pipe currently used for the pilot cable), the minister stated that glass fiber cables would probably not be topical until the late 1980's, for financial reasons. Up to that time copper popes will have to be used. The copper pipe used at the present time offers the same potential for transmission as the glass fiber, excepting only the picture phone. The minister also explained that Bundespost resources will not be able alone to handle the future wideband cable television in the FRG. Under consideration, therefore, are the possibilities of cooperating with private network producers and network operators. Schwarz-Schilling contradicted Hamburg chief mayor

von Dohnanyi who had claimed that cable networks would lead to the loss of jobs. The opposite was more likely.

Schwarz-Schilling notes that the Bundespost will, in 1983, invest a total of DM776.3 million in the region of the Hamburg postal directorate.

11698
CSO: 5500/2570

BUNDESPOST TESTING NEW TECHNOLOGY IN PAY TELEPHONES

Hamburg DER SPIEGEL in German 6 Dec 82 pp 88, 89, 91

/Text/ The Bundespost is testing pay telphones that do not use coins.

Some work with paperclips, others a use a nail file, yet others apply ketchup to bypass the equipment--a great deal of effort for a few dimes.

Still, for the Bundespost these dimes add up to a substantial amount. The state enterprise loses more than DM12 million annually as a consequence of ruined equipment, broken cash containers in pay telephone booths and the many tricks used by cheating customers to use the telephone without paying.

Soon these undesirable "talking guests" (postal German for telephone users) will have a somewhat harder time. The Bundespost intends to introduce pay telephones that accept only a special card instead of coins. The telephone people hope that the cash-less telephones will no longer offer an incentive to larceny. The usual tricks of telephone thieves will not work.

Plastic cards will be available for purchase in post offices in denominations of DM10 or DM20. They will hold 45 or 92 call units each. In the case of the DM20 card this involves a modest discount of DM1.16.

The cards are easy to use. The customer inserts it in the pay phone, the units used are marked off the card. The telephone constantly displays the units remaining.

Before all units are used up, 20 seconds before to be exact, the instrument display flickers and hums. If the customer wishes to continue talking, he must depress a key and insert another card--the used up card is automatically expelled.

The technology of the new card is extremely sophisticated. The units are stored as a holograph in the plastic card which resembles a Eurocheck card. Holography was initially developed for three-dimensional picture reproduction but also offers the opportunity for storing a large volume of all kinds of data in a tiny space.

An infrared laser in the telephone instrument reads the data on the card and, as each unit is used, destroys the corresponding part of the optical code.

True, the process is expensive. At the present time this telephone equipment costs about 50 percent more than the traditional coin phones. The production costs per card amount to roughly DM1. On the other hand, the holography system is reckoned to be virtually tamper proof.

The Federal Ministry for Posts and Telecommunications admits that "some crooks will be able to juggle even the most modern equipment. But we expect our troubles to decrease to a very great extent."

The idea for all of this originated with an outsider, not one of the major firms in the telecommunications industry such as Siemens or SEL. The Swiss firm Landis and Gyr, specialist producers of electronic counters, took 15 years to develop the holography equipment that was initially intended to be a modern variety of coin meters.

The principle could easily be transferred to the telephone. Already postal administrations in Sweden, Belgium, France, Spain, Austria and Switzerland are running tests of the card system. Following successful tests, the British Telecom telephone company already intends to order some 10,000 instruments.

Holograph storage is superior to the traditional magnetic strips as used by the banks for their automated teller cards. It is easier to juggle magnetic storages and also to destroy them by electrical interference.

Still, not even the holograph card represents the latest in technology. Even more sophisticated is the chip card, a super flat electronic storage. It can easily conduct a dialogue with its big brother, the computer.

The chip card is reprogrammable and may be used for many purposes, as a credit card in the supermarket or at the gas station just as in the bank or the telephone booth. However, for it to get into general use, all the parties involved would have to agree standardized procedures.

Eberhard Schroether, official in the Bundespost, forecasts that the "chip card will prevail over the holograph card with respect to public pay telephones."

Provided, of course, the customers go along. The Bundespost intends initially to introduce the card operated telephones as an additional service in frequently used booths. All 126,400 coin phones will certainly not be replaced by cash-less telephones.

The Bundespost will instal 30 card phones in Frankfurt next spring. There the new system is to be severely tested: Almost 25 percent of all vandalized pay telephones in the Federal Republic are to be found in the vicinity of Frankfurt railroad station.

11698
CSO: 5500/2569

PTT, DGT, SET UP STRUCTURES TO RUN TELECOM-1 NETWORK

Paris ELECTRONIQUE ACTUALITES in French 3 Dec 82 p 14

[Article by DL]

[Text] One year after the launching of the first satellite, PTT has adopted structures designed to utilize the Telecom 1 system, and has decided to install in 1983, a test network which will make it possible to simulate on land, the operation of the satellite telecommunications system. Also in the expectation of starting the service planned for September 1984, PTT will order in the coming weeks, a lot of 50 intra-enterprise stations which will be added to the 50 already ordered, and to a third lot of the same size planned for 1983. With Telecom 1, France continues to set the telecommunications pace in Europe, moving ahead of Germany and Great Britain, which are expecting to obtain a national satellite telecommunications network around 1986.

Colin de Verdiere, chief engineer, has been designated as director of the Telecom 1 project, and as such is reporting directly to the general director for telecommunications. He will coordinate all the telecommunications services involved in implementing the Telecom 1 system. In order to prepare the exploitation phase of the system, and considering its international nature (agreement with Intelsat and RFG), the Directorate for External Networks Telecommunications (DTRE) has been assigned the responsibility for Telecom 1 exploitation, as well as for operational relations with foreign administrations and units.

In the space sector, DTRE will be responsible for the placement and maintenance of satellites, and for the operation of the payload control center; in the ground sector, it will assure the implementation and utilization of Mainland-Overseas Departments links at 4-6 GHz, the exploitation of the centralized management center of the enterprise network (12-19 GHz) in Mulhouse, and the centralized management of the equipment in the enterprise network.

Regional telecommunications directorates will be responsible for the implementation and exploitation of regional centers for exploiting and maintaining the enterprise network. They will also coordinate the commercial

management of subscribers under their jurisdiction. The Directorate for National Network Telecommunications will assist in the implementation of interurban land links for connecting users to the land stations of the enterprise network.

A Test Network

Another keystone in the Telecom 1 structure is CNET (National Center for Telecommunications Studies), which has formulated the system specifications, and which now provides detailed technical supervision for the fabrication of telecommunications equipment for the space and land sectors.

Commecialization of the intra-enterprise service will be provided by France Cables et Radio (the technical sales team Telecom 1, directed by Mr Popot, has been working for this PTT subsidiary since 1980). We should point out that the joint DGT-CNES (General Telecommunications Directorate-National Space Studies Center) structures for the program committee and the project team, responsible for supervising the completion of the space sector, remain unchanged.

One year before the launch of the first satellite (planned for the beginning of 1984), a Telecom 1 test network will allow PTT, users, and equipment manufacturers to test the various technical aspects of the system's operation before its operational implementation (in the fall of 1984). Named Perisat, this network has been installed in the Paris region and will be composed of about ten major nodes. The connections (wire or fiber optics) will consist of one or several 2 Mbits/s conduits. In addition, it will be possible to introduce a satellite loop into Perisat, in order to test transmission protocols with their corresponding propagation delays.

11,023
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GOVERNMENT GIVES CII-HB 750 MILLION FRANCS

Paris ZERO UN INFORMATIQUE HEBDO in French 22 Nov 82 p 36

[Article by Gerard Schmitt]

[Excerpts] Having already dealt with the research sector, the government is using comparable procedure of decentralized consultation to examine industry through a process that should culminate in the National Congress of the French Industry, scheduled for 27, 28, and 29 June 1983, as well as in the formulation of a legislative text concerning industrial development, a text which will be integrated next fall in the Second Law of the Plan. At the initiative of Jean-Pierre Chevenement, two workshops conducted on 15 and 16 November in Paris, marked the official beginning of this "long term examination process."

From the proceedings of these workshops, which involved some 800 persons (nationalized sector staffs, high executives, unionists, and to a lesser extent, representatives from the private sector), a few points raised by Louis Gallois, general director of the Ministry of Industry, are of particular interest to the electronics industry.

Mr Gallois reminded us that the action program for the electronics industry is geared to provide it both with its incentive and its coherence. The program is designed around six essential orientations, closely coordinated with one another: industrial action (investments and restructuring); accelerated research effort; development of new communications systems; inception of a training program; definition of a policy for public purchasing; and establishment of an administrative coordination structure. These various actions have already begun.

750 Million French Francs for CII-HB

The industrial structure has been consolidated through the completion of the nationalization program, with the acquisition of four subsidiaries of ITT-France, as well as with 1982 endowments of capital or participatory loans of 300 MFF (million French francs) for Thomson, 750 MFF for CII-HB, and 200 MFF for CGE.

The industrial restructuring aimed at simplifying and defining the goals of each group found concrete form in "the formation of two components centers around Matra and Thomson, with the latter taking over from Saint-Gobain the activities of Eurotechnique," and in "the gathering of Sems (Societe Electrique Mecanique et Signal) and Transac around CII-HB, which thus clearly emerges as the French leader in data processing activities."

Bringing Sems and Transac Together

The strengthened guiding role of the government is characterized by higher available credits for the industry, which are 33 percent above those of 1982 in the 1983 budget (8 billion French francs in 1983, compared to 6 billion in 1982).

In the coordination of research and industry, "six of the national projects planned by the electronics industry task force have been started, and the evaluation phases of the last two have been finalized."

In the essential area of training, "1600 additional trainees in seven regions will be in training in 1983, while the education of 100 trainers and 1000 personnel representatives is being started by CNAM (National Trade School for Industrial Arts and Crafts)." A complete plan of action will be announced at the beginning of 1983 for this area.

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CSO: 5500/2559

TELECOMMUNICATIONS INVESTMENTS DECREASE IN 1983 PTT BUDGET

Paris ELECTRONIQUE ACTUALITES in French 12 Nov 82 p 12

[Article by DL]

[Text] The PTT budget proposal, which will be discussed Friday by the National Assembly, stipulates authorizations for budget programs of 25.139 billion francs for telecommunications, to which should be added 2 billion in orders to be placed through financing companies.

The total telecommunications investment credit for 1983 (27.139 billion francs)is therefore slightly lower than the amount for this year (27.2 billion). This is the first time since 1979 that telecommunications investments decrease in current francs.

Overall, the PTT budget proposal for 1983 adds up to 142.9 billion, for a growth of 16.7 percent. This is undoubtedly what Mr Mexandeau, minister of PTT, must have meant when he stated at the press conference that "PTT is not amongst the least favored." Because otherwise, for telecommunications at least, the situation is quite frankly, poor.

As in 1982--and at the risk of continuing what was announced as an exceptional deduction--the PTT budget is cut by a portion of the surplus forecast created by telecommunications. However, the deduction is reduced from 3.2 billion to 2 billion disbursed to the general budget. And since on the other hand the compensation received from the general budget (as part of the press deficit) goes from 1.160 to 1.270 billion, the gap becomes only 700 million francs.

Despite the reduction in investment credits, Mr Mexandeau estimates that "the 1983 budget will make it possible to continue the telephone equipment effort." The main line inventory, which was 18.7 million at the end of 1981, and which reached 18.6 million in June 1982, will go to 21.2 million by the end of 1983, with the average connection delay having been reduced from 3 months to 1.2 months. It should be noted that because the negotiations were completed before the government's green light for cable networks, there is nothing in the 1983 budget for financing the first orders of about 1 billion. "Various possibilities are being considered, notably having recourse to loans," we were assured. But the industrialists would like to be certain.

Mails will devote its 2.3 billion investment to pursue its program for automating sorting centers, continue the computerization of post offices, equip the first post offices with computer terminals, install automatic cancellation windows, and launch electronic mail.

11,023
CSO: 5500/2560

PTT SEEKS WAYS TO FINANCE, ORGANIZE CABLE NETWORK

Paris ELECTRONIQUE ACTUALITES in French 12 Nov 82 pp 1, 11

[Article by D. Levy]

[Excerpt] PTT will invest 7 billion francs in the program for videocommunication cable networks between 1983 and 1985. These credits, to which the government estimates 4.9 billion will be added from local collectivities, industrialists, and services production, will make it possible to provide 1.4 million connections during the period in question. Beginning in 1985, orders should exceed one million connections per year, so that by 1982 [as published] at least 6 million households should be connected. Commenting on these measures during a press conference held on 4 November in Paris, announcing the government's green light for cable networks, Mr Mexandeau, minister of PTT, pointed out the "formidable prospects offered to our industry by the launching of an ambitious domestic equipment program for telecommunications cable networks." It is true that this decision represents a considerable industrial stake (see ELECTRONIQUE ACTUALITES of 1 October).

The government's decision to approve the program for videocommunication cable networks proposed by the minister of PTT, was received with relief by our industry, which is witnessing the administration's credits allocated to telephone equipment, vanish like snowballs in the sun. Other reasons for satisfaction are the technical choices for the "development of star-shaped distribution networks, using fiber optics technology as rapidly as possible, and eventually leading to the construction of wide-band multi-service national networks."

However, the matter of these networks' financing is not very clear. Ultimately, PTT considers that it will be able to fully assume the financing of what it deems to be an extension of its public service throughout the country. But in coming years, starting in 1983, PTT recognizes that "the project cannot be supported solely by telephone users," and asserts the "need to determine the most motivated local collectivities." According to this approach, Mr Mexandeau has described a "mix of about 30 percent financing from

local collectivities in the form of reimbursable advances, and 70 percent from PTT (self-financing, national loans, financing companies, and international loans through CNT)." But, the minister added, "the financing of the networks will make demands neither on the budget, nor on the taxpayer."

What will actually happen in 1983? We note that the 1983 budget proposal does not include any credits for cable networks. It is true that this budget was formulated after the usual ministry negotiations, but before the government's go-ahead. As a result, "various financing possibilities, notably through loans," are mentioned ministry circles.

To be sure, PTT's borrowing capability is quasi unlimited. But in the present economic circumstances, is the authorization of Finance foreordained? What would be awkward and difficult to accept--the worst solution must be considered--would be to dip into telephone allocations to finance the cable networks. In other words, the industrialists would be offered with one hand what the other had taken away.

First Act of the Electronics Industry

This reservation having been stated, we should now hail the government's decision to become involved with videocommunication cable networks. It is the first action in the offensive of the electronics industry, and the importance of this choice for our industries is magnified by the fact that it results in orders for public enterprises and in contributions to research.

The program planned for 1983-1985 covers 1.4 million connections ordered from industry, for a total of 7.5 billion francs (6 billion from PTT and 1.5 billion from local collectivities). Superimposed on this equipment plan, will be a research and development effort, of which 0.8 billion will be financed by PTT and 1.6 billion by the industrialists. Lastly, PTT will contribute a "token" of 0.2 billion for the development of new interactive services, but it justifiably believes that this is primarily the business of the audiovisual production sector, from which it expects to receive an investment of 1.8 billion. All in all, the value of the PTT program for 1983-1985 amounts to 7 billion francs from the administration, and 4.9 billion from its other partners.

Beginning in 1983, PTT expects to order 100,000 connections from industry, for a total of one billion francs. In 1984 and 1985, the orders will be 300,000 and 1 million connections respectively, corresponding to an annual investment of 2 billion. Starting in 1986, the annual investment could reach 4 billion. While the cost per connection will initially be high (10,000 francs), it will be lowered to a very reasonable amount (2000 francs) in two years.

Technical Choices

The technical options selected for the cable networks can be summarized in three terms: star-shaped distribution, optical fibers, and multi-service systems. These selections reflect a goal which is not unlike that of time

switching: France's lag in one technology is in a way used to advantage to "skip" one system generation. Under the circumstances, France will abandon the type of remote distribution networks installed in Belgium and the United States--which the previous government rejected for political reasons--to enter an area which will ultimately lead to "all-optics" wide-band multi-service networks.

To be sure, this goal will be reached in stages (we know in fact that small first orders will involve coaxial cable networks, because PTT is engaged in a veritable race against the clock: things must be ready before the arrival of direct TV satellites in 1985. But the equipment ordered in 1983 will be delivered and installed only 18 months to 2 years later). But what is important, is that irreversible options in architecture and technology will immediately place our industry on the promising and inescapable path of wide-band multi-service networks. As in the case of time switching, our industries must seize the opportunity that presents itself, to exploit to the fullest on foreign markets the progress made at home.

The present choice is star-shaped distribution, which will allow interactive operation from the beginning; it is the rational use of DGT's (General Directorate for Telecommunications) existing infrastructure (tubular conduits); and it is the use of PTT's capabilities for wide-band interurban transmission (electronic freeways). These cable networks should implement "the technology of fiber optics as rapidly as possible."

These new facilities will thus make it possible to multiply the capacity of the conventional services offered to users (telephone, telex, telecopy, videotex, television), and to develop a new range of services for private individuals as well as for enterprises. The former will have at their disposal, on demand, specialized audiovisual programs, television films, and interactive communication; and the latter high speed remote data processing, videoconferences, and remote office automation.

11,023
CSO: 5500/2560

CNET DIRECTORS OUTLINE MAIN PROJECTS

Paris ELECTRONIQUE ACTUALITES in French 26 Nov 82 pp 1, 13

[Article by D. Levy: "CNET Carries Out Series of Actions to Improve Transfer of Technology to Industry"]

[Text] Almost one year ago to the day, Mr Poitevin and Mr du Castel were respectively named director and deputy director, of CNET (National Center for Telecommunications Studies). These nominations were accompanied by an official recognition of CNET's technical role, its inter-ministry task, and its indestructible bond with PTT (DGT--General Telecommunications Directorate). Armed with these assurances, CNET started a series of diversified actions in recent months, in order to improve the transfer of technology to industry. These actions, and CNET's role within the electronics industry were at the heart of our interview with Messrs Poitevin and du Castel. Mr Poitevin emphasized CNET's "major projects"--three of which are already underway, to be complemented with a half-dozen more--which make it possible to form various CNET research teams in association with industrialists, who are subsequently encouraged to carry on independently. Mr du Castel pointed out the effort being made in III-V technology components (at CNET-Bagneux), and the planned cooperation between LETI (Laboratory for Electronics and Data Processing Technology) and CNET-Grenoble to bridge a decisive technologic gap in submicron CMOS technology.

Compared to other national research centers, CNET's originality arises from its position at the crossroads betweeen research and development and the utilization network (telecommunications). As we know, this nodal position is one of the telling innovations in the speech of the minister of research and industry, implemented especially in the electronics sector. As Mr Poitevin reminded us, "CNET has a tradition in this field, and we want to strengthen it, because it is only by improving the technologic transfer of a research structure to production, that we will win in the competition which pits us against Japan and the United States."

As for CNET, its director explained that "we took care to preserve existing technologic transfer procedures (from order specifications to supervision of manufacturing), complementing them with valorization of technologies within PMI (small and medium-size enterprises) and with participation from industrialists in CNET projects."

Ten Projects for CNET

These projects consist of structured multi-annual programs designed for wide-spectrum exploration of a new technical field likely to be industrially exploited in the near future (3-7 years). Various CNET teams specialized in the many disciplines involved in the project are thus formed. In addition, manufacturers collaborate in the projects to prepare the transfer to industry under the best possible conditions. Mr du Castel mentioned in passing that this approach makes it possible to combine internal CNET activities and to invest responsibility in its teams, by contrast with "an atomized CNET in which not everybody felt a vested interest."

Currently, three large projects have already been implemented at CNET: Concerto (launched at the end of 1980); a 1.5-micron single-mode optical link; and a signal processing microprocessor. The first of these is a software study project aimed at validating the integration of software engineering functions for building large automatic switches. Concerto unites several CNET software teams, as well as university researchers and SSCI (Data Processing Services and Consulting Companies). The 1.5-micron single-mode project (see ELECTRONIQUE ACTUALITES of 26 February), whose goal is to explore the optical window at 1.5 microns, joins CNET teams from Lannion and Bagneux, to which will be associated engineers from CIT-Alcatel and Cables de Lyon (in the hope of an underwater optical link, for instance). Lastly, the signal processing microprocessor combines microelectronics teams from CNET-Grenoble and signal processing ones from Paris centers. CNET is beginning to seek industrial partners to become associated with this project.

CNET is also examining other projects, particularly a utilization network project for management and maintenance, and a RITD (integrated telephone and data network) project tested with 200-300 subscribers. Industrialists and users are expected to participate from the start, each contributing his own input, so as to gain concrete field experience.

Mr Poitevin estimates that "a total of some ten projects will be defined for CNET," and considers that the center's other development activities, both short and long term, cannot be structured.

But the projects constitute a type of technology transfer oriented toward major manufacturers. Another policy is used for PMI. "At CNET we have formed a PMI Committee, endowed with a budget and responsible for identifying PMI capable of valorizing CNET technologies," explains Mr Poitevin. PMI will thus have access to certain technologies developed by CNET by building models financed through this committee. As of this year, 2 million francs have been allocated to this committee.

Other CNET technology transfers involve electronic industry projects. Here Mr du Castel cites two types of operations. The first is direct dissemination of CNET-developed technologies (for instance, in the display project, CNET, which has acquired solid experience in flat screens, has started discussions with Renault and Matra). The second is cooperation with other research centers to form a technological force.

In this latter scheme, two actions are underway, one concerning III-V components (GaAs, InP), and the other involving submicron microelectronics (in all likelihood, CMOS). Mr du Castel states that "we hope to gather the most competent university microelectronics researchers at CNET-Bagneux and transform this center into a Parisian or even national focal point for III-V components". He adds: "France is well positioned in this field and has a good chance of reaching first place. It would be a pity to miss the boat in this technology because of scattered resources and oversensibility."

Concerning microelectronics, Mr du Castel reveals that CNET has begun discussions with LETI to perfect a program of complementary studies, and avoid fruitless competition. He emphasizes that "there is no room in France for two major centers in these advanced technologies". In this spirit of cooperation, a program coordination committee answering to the Ministry of Research and Industry (and presided by Mr Tezner) will set down short and long term objectives and major guidelines. Mr du Castel indicates that "we have set ourselves the goal of becoming leaders in submicron technologies, most likely CMOS, by 1986, and of disseminating them throughout industry."

11,023
CSO: 5500/2561

EGT SET TO ENTER TELECOPIER, SIGNAL RECEIVER MARKET

Paris ELECTRONIQUE ACTUALITES in French 3 Dec 82 p 14

[Article by D. Levy]

[Text] Bolstered by the assurances given by the minister of PTT about its commercial role, and having strengthened its bonds with the government, EGT (General Telecommunications Enterprise), a subsidiary of France Cables et Radio, is preparing new generations of telephone peripheral equipment which will be introduced on the market beginning in 1983. In addition to new answering machines, EGT will commercialize the Tegefax telecopier, 5000 units of which have been ordered from Thomson-CSF (an order that could be increased to 10,000), and will launch another true Groupe 3 telecopier model. (The company is hesitating between Thomson's Thomfax 3000 and CIT-Alcatel's 5231). In the area of Eurosignal call receivers, EGT has started an industrial consultation to obtain during the coming year, a new instrument that is less expensive and smaller than the current model. Finally, EGT expects to place in service car telephone networks at 400 MHz (Thomson and Sintra equipment), and will expand its activity to automatic dialers and possibly cordless telephone sets.

A policy that is in closer agreement with the government, loyalty toward installers, and expansion of the market into telephone peripherals, seem to be the predominant features of of EGT's new beginning. A new beginning which corresponds to the nomination of Mr Darrigrand as chief executive of EGT.

The stronger bonds with the government will be felt in a better collaboration in the commercialization of EGT products, and in tighter exchanges not only at the national, but also regional levels: for instance, services rendered will be billed at the regional level. Moreover, EGT is patterning its installations on those of PTT's Telecommunications, and tends to form an EGT center through DOT (Operational Territorial Defense). With the telecommunications installers, Mr Darrigrand is also talking common sense, relying on dialog and loyalty: "I am ready to discuss everything with the installers," he told us. "But we do not have the same job: EGT's originality is its commercial strength, while the members of SNIT are primarily installers."

Growth of Telecopying

Until now, EGT's star product is the telephone answering machine. The number of sets sold and rented, has gone from 703 in 1974, to 141,797 at the end of last year. During this year, EGT will have placed 70,000 answering machines (of which 15,000 answering machines with remote inquiry--RID) compared to 44,000 last year (of which 8000 RID). All this equipment is now produced in France. According to the terms of current contracts, EGT buys about two-thirds of its simple answering machines from ELEM and one-third from Radiotechnique, while the proportion for answer/recording machines is 20 percent for the former and 80 percent for the latter. RID's are supplied by CSEE (Signals and Electrical Enterprises Company) (about 75 percent) and Crouzet (25 percent).

This market is characterized by a drastic drop in the price of answering machines, and an increased penetration of private users (notably for answer/recording machines). The new RID's have been well received by users (professionals in 75 percent of the cases). Despite the lower prices (due to the new generations of equipment), the answering machine still represents only one-half of EGT's turnover (260 million francs expected this year for nearly 500 employees).

The launching of the Tegefax telecopier in 1983 could change the distribution of EGT's activities. In parallel with Thomson-CSF and 3M, EGT will in fact sell under the name Tegefax, the Thomfax 2000 telecopier produced by Thomson. With an order of 5000 units (and an option for 5000 more), Tegefax will be the focus of EGT's telecopier line. For customers handling few telecopies per day, EGT will continue to offer the S-360 of SECRE (Company for Electric Studies and Manufacturing) (whose last deliveries were made during this year). For users with large volumes of telecopies, EGT will offer a "true" Groupe 3 telecopier. For the time being, EGT is hesitating between Thomson's Thomfax 3000 and CIT-Alcatel's 5231.

EGT will decide between these two products before SICOB 1983. We should point out that the magnitude of the telecopier project will lead EGT to establish a specialized sales force of some 20 people, whereas it operated only a multi-product network. Moreover, EGT will bolster its maintenance teams.

Industrial Consultation on Eurosignal

The commercialization of the Eurosignal receiver is another direction of EGT development (25 percent of its activity). Its output has gone from 1785 receivers in 1976, to 28,709 last year. With the installation of two transmitters in Corsica in October, Eurosignal now covers all of territorial France. This service, whch is currently growing at the rate of 1000 units per month, is thus reaching its full maturity.

This is the time selected by EGT to start a consultation about a new generation of equipment. The new receiver will have to be less expensive, more independent, and smaller than the models presently produced by Thomson

and ESD (Electronique Serge Dassault). In addition to these two suppliers which have gradually conquered the entire Eurosignal market in France and FRG, Bosch, SEL, Grundig, and Philips have responded to EGT's consultation call. It should be noted that the proposal of the Dutch group includes a clause for fabrication in France at TRT (Telecommunications Radioelectricite Telephone). Response to the consultation call, which covers 50,000 receivers, will be made public in January 1983.

In the area of automatic radiotelephones, EGT, which had 2538 subscribers at 150 MHz last year, will place in service the first 450 MHz network at the beginning of next year, with growth objectives of 2500-3000 subscribers per year, or a three-fold increase in two years. Its two suppliers in this sector are Thomson and Sintra.

But EGT is also attempting to widen its area of activity to automatic dialers (a product with 20-30 numbers and a price of about 2000 francs should bridge the gap between higher capacity dialers available on the market, and the future T-83 units, capable of memorizing 10 numbers); to bottom of the line no-hands sets; and to cordless telephone sets. We know that the latter are of interest to SECRE, Thomson, and CSEE. EGT is thus following their progress.

11,023
CSO: 5500/2561

BRIEFS

THOMSON'S MT-20 IN IRAQ--Thomson-CSF Telephone has just received an order for an MT-20 telephone center for Iraq. Used as a national and international transit center, this unit with a capacity of 12,000 circuits will be installed in Baghdad, complementing another transit center placed in service in the same city last July. This is the thirtieth MT time-switching center ordered from Thomson by Iraq, adding up to more than 375,000 lines, and representing an amount of over 1 billion francs. The entire program will be carried out until 1984. At present, Thomson has ready for exportation nearly 1 million electronic telephone lines, either on order or being installed.
[Text] [Paris ELECTRONIQUE ACTUALITES in French 12 Nov 82 p 12] 11,023

CSO: 5500/2560

PIRATE RADIO OPERATORS

Athens I VRADYNI in Greek 7 Dec 82 p 2

[Text] All sorts of pirate radio operators and proprietors of radio networks have been swamping the broadcasting frequencies, with the result that the communications not only of our country but also of neighboring states are being seriously obstructed.

In fact, due to the lack of controls which prevail they have even become so bold that they have reached the point of threatening the employees of the deputy ministry of communications who are responsible for pinpointing them. Just last week, certain proprietors of illegal networks broke into the building of the OTE [Greek Telecommunications Organization] on Three Septemvriou Street by vaulting over the fence, but they were put to flight by employees. It can be inferred that the culprits either wanted to ascertain whether the vehicle with the radio direction finder was located there so as to tell whether they could begin their broadcasts undisturbed, or their intention was to destroy it.

As a result of this incident, Deputy Minister of Communications S. Valyrakis stated that the ministry intends to strengthen its control over the Hertzian waves.

Furthermore, in response to a relevant question Valyrakis said that there is no possibility of legalizing the pirate radio operators. He said also that the establishment of a private radio station falls within the jurisdiction of the Ministry to the Premier, but he did not rule out the granting of permission to operate a station on the part of local government.

12114
CSO: 5500/4711

HELLENIC RADIO-TV TWO ON 24-HOUR STRIKE

Strike Begins

NC151515 Athens Domestic Service in Greek 1230 GMT 15 Dec 82

[Text] Employees of the Hellenic Radio-Television [ERT] Two [formerly Armed Forces Radio] began a 24-hour pan-Hellenic strike effective 0500 today. Their claims are equal pay for equal work and the signing of a collective agreement in 1982 envisaging a gradual equalizing of salaries with ERT One in 1983. This was stated by the coordination committee of the Electronics Employees Association and the Pan-Hellenic Association of Culture and Technical Employees of ERT Two.

Strike Ends

NC160601 Athens Domestic Service in Greek 0500 GMT 16 Dec 82

[Excerpt] The 24-hour Pan-Hellenic strike of the Hellenic Radio-Television Two employees ended at 0500 today.

CSO: 5500/4712

BRIEFS

ILLEGAL STATIONS LOCATING CENTER--In 1983, the Communications Ministry will acquire a center for checking radio frequencies. The center will cost 300 million drachmas and will cover all of Greece on a 24-hour basis. Its aim is to immediately locate illegal radio stations. [Text] [Athens Domestic Service in Greek 2200 GMT 6 Dec 82 NC]

ERT-2 STRIKE--The 24-hour strike of the Hellenic Radio-Television [ERT]-2 employees was a general success, resulting in the radio and television not operating. The strike ends this morning, but action will be continued with a 4-hour work stoppage tomorrow and then one on every other day. According to an initial evaluation of events, this adventure will not end easily for the directors of ERT-2, because the main demand of the employees, which is the equality of salaries with those of ERT-1, has been rejected by Mr Koutsoyiorgas, minister to the prime minister, who stressed that pay will not be equal before 1984. [Excerpt] [NC171025 Athens I KATHIMERINI in Greek 16 Dec 82 p 2]

CSO: 3500/4712

PLANS FOR TELEVISION SATELLITE IN 1986

Brussels SPECIAL/L'EVENTAIL in French 5/11 Nov 82 pp 14-17

[Article by Theo Pirard: "Luxembourg Wants Its TV Satellite!"]

[Text] From 9 to 21 August, with a sun outside urging utter do-nothingness, the venerable Imperial Palace of Vienna inside extended its hospitality to the representatives of 94 rember nations of the UN and the delegates of a number of international organizations, who for two weeks, untroubled by the sweltering heat of the Austrian capital, would, during and between meetings and sessions, be exchanging views and suggestions on the peaceful exploitation of...Space.

At this conference, baptized UNISPACE 82, a small European state--the Grand Duchy of Luxembourg--made its assiduous presence felt. What would the Luxembourg delegation be doing aboard this international galley bound for the space environment?

Luxembourg's presence at UNISPACE 82 attests the dynamism of the Grand Duchy's authorities: They have decided to acquire and operate, within less than 5 years, their own satellite, at an altitude of some 35,800 km, to broadcast European TV programs. A Luxembourg direct-TV satellite is to be launched, prior to 1987, either by the Space Shuttle from Cape Canaveral, or by an Ariane rocket from Kourou... But the operation of this commercial television broadcast satellite on a European scale raises problems of an international order. These problems will inevitable arise with respect to the TV satellites of the future, because their television broadcasts will spill over the borders of the states for which they are primarily intended...

The nation-states represented at UNISPACE 82 preferred to avoid discussing the issue of TV programs coming from powerful satellites and spilling over national borders to "bother" other countries. It is too thorny an issue and one that alone warrants a technical and juridical conference of its own. Discussion at Vienna was thus confined to describing TV satellites as interesting educational aids for developing countries. Luxembourg was on its guard: It had asked a representative of CLT [Luxembourg Television Broadcasting Company] to be prepared to come to Vienna on a moment's notice, in the event the use of TV satellites were to become an unscheduled subject of discussion. For, the Luxembourg government is counting heavily on a bright future for its TV satellite.

The ITU [International Telecommunications Union]--the UN organization specializing in communications (frequency assignments, organization of radio and TV services)--drew up the Geneva Plan in 1977 for the use of TV satellites. This plan assigned to the Grand Duchy--as to most of the nations of Europe--a position at an altitude of 38,500 km (by 19° W longitude) and transmitting frequencies for five new (satellite) TV channels. The Luxembourg government has every intention of putting to good account this natural resource granted to it by an international plan... This resource is a part of Luxembourg's national patrimony and the Grand Duchy's authorities have decided to exercise their right of sovereignty over its exploitation.

In a recent RTL [Luxembourg Radio Broadcasting and Television System] interview, the prime minister of the Grand Duchy, Mr Pierre Werner, took a firm position with respect to operation of the Luxembourg TV satellite. "It is our view that the direct-TV satellite channels assigned to us are a national asset and that we must use them in our nation's interest, since the audiovisual is an important industry for us." Justifying the choice of RTL to operate the Luxembourg TV satellite, Mr Werner said: "RTL has always been a good conveyor of the French spoken language and French culture in Europe; it can continue being one via satellite..."

The stockholders of CLT, which operates RTL, are dragging their feet. True, they agree as to the interest attaching to the TV satellite; but they have no desire whatever to rush headlong into a project that will require the investment of between 5 and 10 billion Belgian francs... The Luxembourg government, for its part, is showing impatience; it would like to see things going faster, that the decision to start production of the TV satellite be taken this fall... So far, RTL (or more exactly, CLT) has kept its plans carefully under wraps. Pending the definitive green light from its board of directors, the Luxembourg TV-satellite project is making headway. Appreciably but prudently. Thus, CLT has:

--Reserved a spot for an Ariane launch in 1986 and spots on two Space Shuttle flights in 1986 and 1987;

--Awarded a contract to the Canadian company Telesat (specializing in the management and operation of telecommunications satellites) for the drawing up of the technical specifications on the characteristics the satellite must have to achieve the desired performance... These specifications will be used as the reference document for the request for bids to be released to satellite builders.

In any case, the ball is in RTL's court. It remains to be seen what RTL will do with that ball. Should it not respond decisively before the end of this year, the Luxembourg government might well terminate the priority it has accorded CLT for the concession of the satellite TV channels and consider another solution...

9238
CSO: 5500/2550

NEC FIRM COMPETING FOR LARGE ORDER FOR PHONE EXCHANGES

Oslo AFTENPOSTEN in Norwegian 14 Dec 82 p 32

[Article by Bjorn H. Tretvoll]

[Text] Tokyo--"We hope the Telecommunications Agency and the Norwegian authorities will base their selection of the type of telephone exchanges to invest in in the future primarily on technical and economic criteria. If our exchanges are chosen, we are prepared to enter into cooperative agreements with existing Norwegian industries so that production of the new exchanges can take place in Norway." This statement was made to AFTENPOSTEN by director Toshiro Kunihiro of the Japanese concern, Nippon Electric Company (NEC).

NEC is one of the firms that will submit a bid at the end of December in connection with the Telecommunications Agency's forthcoming purchase of new digital telephone exchanges. This Japanese concern and the Canadian Northern Telecom will probably be the toughest competitors for the two Norwegian telecommunications suppliers, Elektrisk Bureau (EB) and Standard Telephone and Cable Factory (STK). The competitive bidding involves the delivery of exchanges with a capacity of half a million lines.

"We are aware of the debate created in Norway by this bid procedure. In this context we want to stress that NEC is prepared to set up long-range cooperation with Norwegian industries and the Telecommunications Agency if our system is selected. We feel NEC possesses advanced technology in several areas and on that basis we can make a positive contribution to the development of Norwegian industry in these areas," said Kunihiro.

NEC is an all-round electronics concern with total sales in the last fiscal year corresponding to roughly 35 billion Norwegian kroner. The firm's four main divisions produce telecommunications equipment, computers, integrated circuits and semiconductors and various types of electrical household articles from video players to refrigerators. Production occurs in Japan and 10 other countries. The concern has a total of around 69,000 workers around the world.

In connection with preparing the Norwegian bid, NEC has started a cooperation with Kongsberg Vapenfabrikk which might produce some parts of

the computer equipment that goes into the new exchanges. If NEC wins the bidding competition, an attempt will be made to reach agreements with EB and/or STK on production of the other parts of the exchanges. There is no thought of building a whole new facility in Norway for the production of these exchanges.

Kunihiro stressed that if such agreements are set up, NEC will count on a long-term cooperation that could also lead to deliveries from these Norwegian firms to other markets. NEC is also looking at the possibility of developing and/or producing other products in Norway together with the Norwegian firms. But they do not hide the fact that it has been hard to find profitable ideas because such a relatively small market is involved, even if all of Scandinavia is included.

"We will try to set up a transfer of technology that will not be limited to the equipment alone but that will also include the so-called 'software,' i. e. the programs that are part of the new telephone system. I hope that either Norwegian industry or the Telecommunications Agency might be able to set up a software firm that could be a cooperating partner with NEC in this connection," said Kunihiro. But he emphasized that regardless of which system is selected, the production of the new digital exchanges will be far less labor-intensive than the production of the traditional types of exchanges.

NEC obviously views the contract with the Norwegian Telecommunications Agency as a good opportunity for gaining entry to the European market. NEC has received orders for the type of exchange being offered to Norway from 22 countries in all, among them the United States, New Zealand, Malaysia, Thailand and Argentina. The total order volume for this type of exchange corresponds to roughly 5 million lines.

"An order from Norway could lead to our becoming established as a European producer, something that in the long run will make it easier for us to get orders from other European countries," Kunihiro said.

Advanced Exchanges

The NEC exchanges are based on large integrated circuits. The system can be used for both large and small exchanges. A number of different services can be tied directly to the exchanges, such as mobile telephones, individual beeper systems, satellite connections for maritime communication and a hookup with the international telephone network. Kunihiro pointed out that the exchanges are highly energy-conserving and he stressed that the NEC systems have been tested in existing installations.

"NEC is one of the world leaders when it comes to production of integrated circuits, the use of fiberoptics, the production of various kinds of robots and in other areas of electronics. We believe we will also be one of the leaders within the telecommunications sector in the years ahead," said Kunihiro.

"We see it as a recognition of our position that we have been invited to participate in the Norwegian bidding. We will make a well-prepared bid that we assume will be evaluated seriously. We hope that those working on the bids will evaluate the different systems and not the countries the bids came from," said Kunihiro, who would not rule out the possibility that NEC would be interested in discussing a division of the order if that is desirable.

NEC already has good contacts with the Telecommunications Agency as a result of deliveries of equipment for telefax, individual beeper systems, terminals and broadcasting equipment.

NEC is offering its exchange model NEAX to the Norwegian Telecommunications Agency. This exchange has been delivered to a number of countries, including the United States, New Zealand, Malaysia and Thailand.

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